REMARKS

Claims 1, 5, 10, 11, 13, 22 and 24-28 have been resubmitted. Claims 1, 13, 22, 24 and 25 have been amended. Support for amended Claims 1, 13, 22, 24 and 25 can at least be found at the first four paragraphs of the section of the originally filed specification entitled "Detailed Description." Claims 2-4, 6-9, 12 and 14-21 stand previously canceled by a previous paper. Claim 23 is canceled in the current paper without prejudice or disclaimer of subject matter. No new claims have been added.

The Examiner rejected Claims 1, 5, 11, 13, 22, 27 and 28 under 35 U.S.C. Section 102(b) as being anticipated by Holzl (US 4,515,860, hereinafter Holzl). The Examiner rejected Claims 10 and 26 under 35 U.S.C. Section 103(a) over Holzl in view of Sugiyama et al. (US 4,673,551, hereinafter "Sugiyama"). The Examiner rejected Claims 1, 5, 11, 13, 22-25, 27 and 28 under 35 U.S.C. Section 102(b) as being anticipated by Langlois, Jr. et al. (US 5,258,224, hereinafter "Langlois"). The Examiner rejected Claims 10 and 26 under 35 U.S.C. Section 103(a) over Langlois in view of Sugiyama.

Examiner Interview

Applicants thank Examiner Brunsman for his time and willingness to discuss this pending matter. On January 10, 2005, a telephone interview was conducted with Examiner Brunsman to discuss the rejection of the claims as made in the outstanding Office Action. Applicants noted that the references did not teach or fairly suggest the facts that there is no free carbon in the protective coating (in other words, that the carbon in the protective coating is chemically bound) and that the protective coating is deposited by chemical vapor deposition using methylsilane and nitrous oxide as required in each of independent claims 1, 13 and 22. While no agreement was reached, the

Examiner agreed to consider the proposed amendments in view of the cited references.

Holzl (US 4,515,860)

Holzl teaches a carbon body having a thermochemically deposited coating which renders the body resistant to oxidation at high temperatures. The coating may be formed of a silicon alloy wherein the amount of silicon in the coating is in excess of the alloy stoichiometry.

Independent claims 1 and 22, as amended, and independent claim 13 as previously presented, require the protective coating comprise at least one material selected from the group consisting of silicon oxycarbide (SiO_xC_y), silicon oxynitride (SiO_xN_z), silicon carbonitride (SiC_yN_z), and silicon oxycarbonitride ($SiO_xC_yN_z$), wherein $x < 2$, $y < 1$ and $z < 4/3$, and at least two of x, y, and z are greater than zero in each of said materials.

Furthermore, Holzl uses a thermochemical deposition technique for depositing silicon carbide (Examples 11 and 12), silicon nitride (Example 13), silicon oxynitride (Example 16) and sialon (Example 17). Holzl uses halides, such as methyltrichlorosilane and silicon tetrachloride in this thermochemical deposition technique. The present invention, as amended, uses methylsilane and nitrous oxide in a chemical vapor deposition technique to deposit the protective coating. The present invention requires no halides as does the methods used in Holzl.

Finally, the present invention, as amended, requires that no free carbon be present in the protective coating. That is, all the carbon atoms in the protective coating are chemically bonded to the silicon in the coating. The lack of free carbon minimizes any oxidizing chemical reactions that may occur with

free carbon. The Holzl reference is silent to this beneficial limitation of the current claims, as amended.

Therefore, Applicants' independent claims 1, 13 and 22, and claims 5, 11, 24, 25, 27 and 28 by virtue of their dependency upon these independent claims, are not anticipated by Holzl under 35 U.S.C. 102(b). Reconsideration and withdrawal of the rejection is respectfully requested.

Langlois, Jr. et al. (US 5,258,224)

Langlois discloses protective ceramic coatings that are obtained by dispersing solid particles comprising aluminum nitride particles in an organic solvent solution of a polysilazane. The ceramic coatings of Langlois may be useful as intermediate strata in multilayer ceramic coatings over substrates. Langlois fails to teach or suggest any specific silicon alloy or any specific stoichiometry of silicon to the other alloy components.

Independent claims 1 and 22, as amended, and independent claim 13 as previously presented, require the protective coating comprise at least one material selected from the group consisting of silicon oxycarbide (SiO_xC_y), silicon oxynitride (SiO_xN_z), silicon carbonitride (SiC_yN_z), and silicon oxycarbonitride ($SiO_xC_yN_z$), wherein $x < 2$, $y < 1$ and $z < 4/3$, and at least two of x, y, and z are greater than zero in each of said materials. As noted above, Langlois fails to teach or fairly suggest any specific stoichiometries as instantly claimed.

Furthermore, Langlois requires at least some of the solid particles be aluminum nitride particles in order to form the protective ceramic coating (col. 2, lines 41-43). The protective coatings of the instant invention do not require such a component to be present. The coatings of Langlois are derived from

pre-ceramic polymers, which are liquids. The present invention, as amended, requires the protective coating to be deposited using chemical vapor deposition using methylsilane and nitrous oxide. The aluminum nitride / pre-ceramic polymer method of Langlois is not a chemical vapor deposition method.

Finally, the present invention, as amended, requires that no free carbon be present in the protective coating. That is, all the carbon atoms in the protective coating are chemically bonded to the silicon in the coating. The lack of free carbon minimizes any oxidizing chemical reactions that may occur with free carbon. The Langlois reference is silent to this beneficial limitation of the current claims, as amended.

Therefore, Applicants' independent claims 1, 13 and 22, and claims 5, 11, 24, 25, 27 and 28 by virtue of their dependency upon these independent claims, are not anticipated by Langlois under 35 U.S.C. 102(b). Reconsideration and withdrawal of the rejection is respectfully requested.

Sugiyama et al. (US 4,673,551)

Sugiyama teaches the art of plate-fin heat exchangers adapted for use in superhigh pressure service heat exchangers (Abstract). The Examiner relies on Sugiyama for its general representative teaching of heat exchangers. Sugiyama fails to teach or fairly suggest the deficiencies of the primary references (Holzl or Langlois) as discussed above. More specifically, Sugiyama fails to teach or fairly suggest a protective coating comprising the specific materials in the specific stoichiometries as instantly claimed. Furthermore, Sugiyama fails to teach or fairly suggest a protective coating having no free carbon atoms wherein the protective coating is deposited by a low pressure chemical vapor deposition technique using methylsilane and nitrous oxide.

For the above reasons, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 10 and 26 as being unpatentable under 35 U.S.C. 103(a) over Holzl in view of Sugiyama or over Langlois in view of Sugiyama.

CONCLUSION

Reconsideration and withdrawal of the Office Action with respect to Claims 1, 5, 10, 11, 13, 22 and 24-28 is requested.

In the event the examiner wishes to discuss any aspect of this response, please contact the attorney at the telephone number identified below.

Respectfully submitted,

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I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

on 1/10/05

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